RPC BROKER
INSTALLATION GUIDE

Version 1.1

Revised May 2002

Department of Veterans Affairs
V*IST***A** System Design & Development (SD&D)
Information Infrastructure Service (IIS)

Document Revision History

The following table displays the revision history for this document. Revisions to the documentation are based on patches and new versions released to the field.

Date	Revision	Description	Author
05/08/02	3.0	Revised Version for Patch 26.	Thom Blom, Oakland OIFO
04/08/02	2.0	Revised Version for Patch 13.	Thom Blom, Oakland OIFO
09/97	1.0	Initial RPC Broker Version 1.1 software release.	Thom Blom, San Francisco OIFO

For a complete list of patches released with the RPC Broker V. 1.1 software, please refer to "Appendix A—Patch Revision History."

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Orientation

How to Use this Manual

Throughout this manual, advice and instructions are offered regarding the use of the RPC Broker V. 1.1 and the functionality it provides for Veterans Health Information Systems and Technology Architecture (**V***IST***A**) and commercial off-the-shelf (COTS) software products.

There are no special legal requirements involved in the use of the RPC Broker Interface.

This manual uses several methods to highlight different aspects of the material:

- Various symbols are used throughout the documentation to alert the reader to special information. The following table gives a description of each of these symbols:

Symbol	Description
	Used to inform the reader of general information including references to additional reading material
	Used to caution the reader to take special notice of critical information
	Used to denote Virgin installation instructions only.

Table 1: Documentation symbol descriptions

- Descriptive text is presented in a proportional font (as represented by this font).
- "Snapshots" of computer online displays (i.e., roll-and-scroll screen captures/dialogs) and computer source code are shown in a *non*-proportional font and enclosed within a box. Also included are Graphical User Interface (GUI) Microsoft Windows images (i.e., dialogs or forms).
  - User's responses to online prompts will be boldface type.
  - The "**<Enter>**" found within these snapshots indicate that the user should press the Enter or Return key on their keyboard.
  - Author's comments are displayed in italics or as "callout" boxes.

    

    Callout boxes refer to labels or descriptions usually enclosed within a box, which point to specific areas of a displayed image.

- Object Pascal code uses a combination of upper- and lowercase characters. All Object Pascal reserved words are in boldface type.
- All uppercase is reserved for the representation of M code, variable names, or the formal name of options, field and file names, and security keys (e.g., the XUPROGMODE key).

Commonly Used Terms

The following is a list of terms and their descriptions that you may find helpful while reading the RPC Broker documentation:

Term	Description
Client	A single term used interchangeably to refer to a user, the workstation (i.e., PC), and the portion of the program that runs on the workstation.
Component	A software object that contains data and code. A component may or may not be visible. For a more detailed description, see the "Borland Delphi for Windows User Guide."
GUI	The Graphical User Interface application that is developed for the client workstation.
Host	The term Host is used interchangeably with the term Server.
Server	The computer where the data and the RPC Broker remote procedure calls (RPCs) reside.

Table 2: Commonly used RPC Broker terms

Please refer to the "Glossary" for additional terms and definitions.

How to Obtain Technical Information Online

Exported file, routine, and global documentation can be generated through the use of Kernel, MailMan, and VA FileMan utilities.

Methods of obtaining specific technical information online will be indicated where applicable under the appropriate topic.

Help at Prompts

V*IST*A software has online help and commonly used system default prompts. In roll-and-scroll mode users are strongly encouraged to enter question marks at any response prompt. At the end of the help display, you are immediately returned to the point from which you started. This is an easy way to learn about any aspect of **V*IST*A** software.

To retrieve online documentation in the form of Help in **V*IST*A** roll-and-scroll software:

- Enter a single question mark ("**?**") at a field/prompt to obtain a brief description. If a field is a pointer, entering one question mark ("**?**") displays the HELP PROMPT field contents and a list of choices, if the list is short. If the list is long, the user will be asked if the entire list should be displayed. A YES response will invoke the display. The display can be given a starting point by prefacing the starting point with an up-arrow ("^") as a response. For example, **^M** would start an alphabetic listing at the letter M instead of the letter A while **^127** would start any listing at the 127th entry.
- Enter two question marks ("**??**") at a field/prompt for a more detailed description. Also, if a field is a pointer, entering two question marks displays the HELP PROMPT field contents and the list of choices.
- Enter three question marks ("**???**") at a field/prompt to invoke any additional Help text that may be stored in Help Frames.

Obtaining Data Dictionary Listings

Technical information about files and the fields in files is stored in data dictionaries. You can use the List File Attributes option submenu in VA FileMan to print formatted data dictionaries.

For details about obtaining data dictionaries and about the formats available, please refer to the "List File Attributes" chapter in the "File Management" section of the "VA FileMan Advanced User Manual."

Assumptions About the Reader

This manual is written with the assumption that the reader is familiar with the following:

- **V*IST*A** computing environment (e.g., Kernel Installation and Distribution System [KIDS])
- VA FileMan data structures and terminology
- Microsoft Windows
- M programming language

No attempt is made to explain how the overall **V*IST*A** programming system is integrated and maintained. Such methods and procedures are documented elsewhere. We suggest you look at the various VA home pages on the World Wide Web for a general orientation to **V*IST*A**. For example, go to the System Design & Development (SD&D) Home Page at the following web address:

http://vista.med.va.gov/

This manual does provide, however, an explanation of the RPC Broker, describing how it can be used in a client/server environment.

Reference Materials

Readers who wish to learn more about the RPC Broker should consult the following:

- "RPC Broker Release Notes"
- "RPC Broker Systems Manual"
- "RPC Broker Technical Manual"
- "RPC Broker Getting Started with the Broker Development Kit (BDK)" (written for programmers)
- "RPC Broker Developer's Guide" (i.e., BROKER.HLP, online help designed for programmers, distributed in the BDK)
- RPC Broker Home Page at the following web address:

  http://vista.med.va.gov/broker/

  This site provides announcements, additional information (e.g., Frequently Asked Questions [FAQs], advisories), documentation links, archives of older documentation and software downloads.

Broker documentation is made available online, on paper, and in Adobe Acrobat Portable Document Format (.PDF). The .PDF documents must be read using the Adobe Acrobat Reader (i.e., ACROREAD.EXE), which is freely distributed by Adobe Systems Incorporated at the following web address:

http://www.adobe.com/

For more information on the use of the Adobe Acrobat Reader, please refer to the "Adobe Acrobat Quick Guide" at the following web address:

http://vista.med.va.gov/iis/acrobat/index.html

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1. Preliminary Considerations

Purpose

The purpose of this guide is to provide instructions for installing the Veterans Health Information Systems and Technology Architecture (**V*IST*A**) Remote Procedure Call (RPC) Broker (also referred to as "Broker") Version 1.1.

This version of the RPC Broker provides programmers with the capability to develop and deploy new **V*IST*A** client/server software using the Broker Delphi components in the 32-bit environment.

About the Installation Procedures

The installation of the RPC Broker can be a *multi-part* process. Separate installation procedures are provided in this guide for each of the following target environments:

- End-User Client Workstations
- Programmer Client Workstations
- **V*IST*A** M Servers

For all patches, please read the patch installation instructions in the Patch module on FORUM first. For patches and new releases (including virgin installations), please read the Readme file. Based on the release/patch type indicated, do the following:

- **End-User Client Workstation and/or Server Patch:**
  - **End-User Client Only—**If this is an End-User Client Workstation only patch installation, follow the client installation instructions in the "End-User Client Workstation Installation Instructions" section in this manual only.
  - **End-User Client and Server—**If this is an End-User Client Workstation *and* a server patch installation, follow the client installation instructions in the "End-User Client Workstation Installation Instructions" section in this manual and the server installation instructions in the Patch module on FORUM.
- **Programmer Client Workstation and/or Server Patch:**
  - **Programmer Client Only—**If this is a Broker Development Kit (BDK) only patch installation, follow the client installation instructions in the "Programmer Workstation Delphi V. 6, 5, and 4 Instructions" section in this manual only.
  - **Programmer Client and Server—**If this is a Broker Development Kit (BDK) *and* a server patch installation, follow the client installation instructions in the "Programmer Workstation Delphi V. 6, 5, and 4 Instructions" section in this manual and the server installation instructions in the Patch module on FORUM.
- **Server-side Only Patch—**Follow the server installation instructions in the Patch module on FORUM.

- **Full Release/Virgin Installation (End-User Client Workstation, Programmer Client Workstation, and V*ISTA* M Server)—**Follow all installation instructions in this manual.

For End-User Client Workstations, two methods are provided for installing the RPC Broker client software:

- **Interactive**—user input required
- ***Non*-interactive**—"silent," no user input required

For Programmer Client Workstations, there are separate procedures, depending on the version of Delphi for which support is needed:

- Delphi V. 6
- Delphi V. 5
- Delphi V. 4

Delphi V.2 and V. 3 are no longer supported. Delphi V.2 was supported prior to patch XWB*1.1*4 and Delphi V. 3 was supported prior to XWB*1.1*13.

For installation guides and other documentation supporting Delphi V.2 and 3, please refer to the RPC Broker Archives at the following web address:

http://vista.med.va.gov/broker/archives/

For first-time field deployments, we strongly recommend the following approach to installing the RPC Broker:

1. Obtain the RPC Broker documentation. It is available in Acrobat PDF format, and can be downloaded from the National **V*ISTA*** Support (NVS) anonymous directories or from the System Design and Development (SD&D) **V*ISTA*** Documentation Library (VDL) web site:

   http://vista.med.va.gov/vdl/

2. Install the server software in a Test account prior to installing it in a Production account.

Some RPC Broker distribution files have been replaced with patched versions, making them obsolete, including the original, unpatched Programmer client workstation software. All such obsolete files remain available from the RPC Broker web site's archive at the following web address:

http://vista.med.va.gov/broker/archives/

RPC Broker Distribution Files

File Name	Type	Description
XWB1_1P26RM.TXT	ASCII	**Readme Text File**. Provides any last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to workstation installations.
XWB1_1P26IG.PDF	Binary	**Installation Guide** (manual). Use in conjunction with the XWB1_1P26RM.TXT Readme text file.
XWB1_1P26DG.PDF	Binary	**Getting Started with the Broker Development Kit** (manual).
XWB1_1P26SM.PDF	Binary	**Systems Manual** (manual).
XWB1_1P26TM.PDF	Binary	**Technical Manual** (manual).
XWB1_1P26RN.PDF	Binary	**Release Notes** (manual).
XWB1_1P26PG.EXE	Binary	**Programmer Client Workstation Software**, self-installing executable. Contains: • Broker Development Kit (BDK): Provides the TRPCBroker Delphi Component for Delphi Broker development. • Broker.HLP: The complete online reference to the BDK. • BrokerProgPref.EXE: Sets BDK developer preferences. • ServerList.EXE: A configuration tool to edit client connections to RPC Broker servers. For more information, please refer to the "Edit Broker Servers Program" section in the "System Features" chapter of the "RPC Broker Systems Manual."
XWB1_1WS.EXE	Binary	**End-User Client Workstation Software**, self-installing executable. Contains: • Client Agent Software: Software to install on client workstations to run RPC Broker applications. For more information, please refer to the "System Features" chapter of the "RPC Broker Systems Manual." • RPCTEST.EXE: A diagnostic tool to test connectivity to RPC Broker servers. For more information, please refer to the "Troubleshooting" chapter of the "RPC Broker Systems Manual." • BAPI32.DLL: A 32-bit Broker Dynamic Link Library (DLL) interface to Broker component functions.

File Name	Type	Description
		For more information, please refer to the "Broker.HLP" file.
XWB_DFLT.INI	ASCII	**Initialization File**. Use for *non*-interactive installation of the Broker on end-user client workstations.
XWB1_1.KID	ASCII	**KIDS Distribution.** Contains the original (unpatched) RPC Broker server software: • 1 Global (^XWB) and VA FileMan files • Server Routines • Kernel Options and Remote Procedure Calls
Server patches (KIDS)	ASCII	**Server Patches.** Obtain all released RPC Broker V. 1.1 server-side patches, from the Patch module on FORUM or through normal procedures.

Table 3: RPC Broker Patch XWB*1.1*26 distribution files

End-User Client Workstation Requirements

The following minimum hardware and software tools are required on your client workstation in order to install and use the RPC Broker:

- **Hardware**

  80x86-based client workstation

- **Operating System**

  One of the following 32-bit operating systems:

  - Microsoft Windows 2000
  - Microsoft Windows NT Workstation V. 3.51 or greater
  - Microsoft Windows 98
  - Microsoft Windows 95

  The VA has made the decision to go to a 32-bit Microsoft Windows environment. Therefore, this version of the Broker does not operate on Microsoft Windows 3.1 or Windows 3.1 with WIN32S.

- **Network communications Software**

  The Broker requires networked client workstations running Microsoft's native TCP/IP stack.

  Currently only Winsock compliant TCP/IP protocol is supported on the LAN or remotely as Point-to-Point Protocol (PPP) or Serial Line Internet Protocol (SLIP). You must use RAS (Remote Access Service) or Dialup Networking to connect to the server using PPP or SLIP. For the setup of RAS or Dialup Networking, please refer to the appropriate operating system's documentation.

  For more information on telecommunications support, please visit the Telecommunications Support Office Home Page:

  http://vaww.va.gov/cso/

Programmer Client Workstation Requirements

The workstation requirements for programmer workstations are the same as for end-user client workstations (see previous section).

- **Delphi V. 6, 5, or 4 Software** (required for the Broker Development Kit [BDK])

  Delphi is *not* required for developers who use the RPC Broker Dynamic Link Library (DLL), rather than the TRPCBroker Delphi component. For such developers, any development product that supports linking to 32-bit Microsoft Windows DLLs can be used.

  Versions 1.1 and greater of the RPC Broker do *not* support development of Delphi V. 1.0 16-bit (i.e., Microsoft Windows 3.1 and below) applications. However, the Broker routines on the **V*IST*A** M Server will continue to support **V*IST*A** applications previously developed in the 16-bit environment.

This statement defines the extent of support relative to use of Delphi. The Office of Information (OI) will support the Broker Development Kit (BDK) running in the currently offered version of Delphi and the immediately previous version of Delphi. This level of support became effective 06/12/2000.

Sites may continue to use outdated versions of the RPC Broker Development Kit but do so with the understanding that support will not be available and that continued use of outdated versions will not afford features that may be essential to effective client/server operations in the V*IST*A environment. An archive of old (no longer supported) Broker Development Kits will be maintained at:

http://vista.med.va.gov/broker/archives/index.html

V*ISTA* M Server Requirements

The following minimum software tools are required on your **V***IST***A** M Server in order to install and use the RPC Broker:

- **Server Operating System**

  One of the following operating systems:

  - Digital Standard M (DSM) V6.3-031 for OpenVMS AXP or greater
  - InterSystems Caché for NT and OpenVMS

- **Fully Patched M Accounts**

  You should have both a development Test account and a Production account for the Broker software.

  The account(s) must contain the *fully* patched versions of the following software:

  - Kernel V. 8.0

    

    For virgin installations of the RPC Broker at Kernel V. 8.0 sites, install Patch #59 (i.e., XU*8*59), if you haven't already installed it, *after* you have installed the RPC Broker V. 1.1.

  - Kernel Toolkit V. 7.3
  - VA FileMan V. 22.0

  These packages must be properly installed and *fully* patched prior to installing the RPC Broker server software distribution. Patches must be installed in published sequence.

- **Network communications Software**

  Your server needs to have TCP/IP running.

- **Released RPC Broker V. 1.1 Patches**

  At the time of publication of this manual, several server-side patches for the RPC Broker V. 1.1 have been released. You should have these patches readily available so that you can apply them after you install the baseline RPC Broker V. 1.1 KIDS distribution. Obtain all released RPC Broker V. 1.1 server-side patches, from the Patch module on FORUM or through normal procedures.

Skills Needed for Installation

Skills required to perform the installation are listed below. Instructions for performing these functions are provided in vendor-supplied operating system manuals as well as **V*IST*A** publications.

DSM for OpenVMS sites should refer to the most recent Computer Operations Management and Procedures for AXP Systems (COMPAS) manual. Please refer to the AXP team's web site at:

http://vaww.va.gov/custsvc/cssupp/axp/axphome.asp

Caché for NT and OpenVMS sites should refer to the AVANTI How-To web site currently located at:

http://vaww.va.gov/custsvc/cssupp/avanti/How-to.HTM

You need to know how to do the following:

- Back up the system

  *[V*ISTA *M Server and Programmer/End-User Client Workstations]*
- Create directories on the host file system

  [Programmer/End-User Client Workstation only]
- Copy files using commands of the host file system

  *[V*ISTA *M Server and Programmer/End-User Client Workstations]*
- Run a KIDS installation

  *[V*ISTA *M Server only]*
- Switch User Class Identification (UCI) accounts

  *[V*ISTA *M Server only]*
- Enable/Disable routine mapping and journaling

  *[V*ISTA *M Server only]*
- Manage globals, including global placement, protection, and translation

  *[V*ISTA *M Server only]*
- Run a system status and restore a job

  *[V*ISTA *M Server only]*

2. End-User Client Workstation Installation Instructions

First, determine if you need to follow the installation instructions in this section by consulting the patch installation instructions, the Readme file, and the "Preliminary Considerations" section in this manual.

Two sets of instructions are provided for End-User Client Workstations:

- Interactive
- Non-Interactive

The RPCBI.DLL and Client Manager (i.e., CLMAN.EXE) previously distributed and installed in the VISTA/Broker directory on the client workstation (i.e., via Broker V. 1.0) are not used by this version of the Broker. However, they should not be removed from client workstations. Any 16-bit RPC Broker V. 1.0-based applications in use on the workstation (e.g., early versions of PCMM) would still need the RPCBI.DLL and Client Manager.

Interactive Installation Instructions

1. Confirm Distribution Files

You need the following files to install the RPC Broker end-user client workstation software:

File Name	Type	Description
XWB1_1P26RM.TXT	ASCII	**Readme Text File**. Provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to workstation installations.
XWB1_1P26IG.PDF	Binary	**Installation Guide**. Use in conjunction with the XWB1_1P26RM.TXT Readme text file.
XWB1_1WS.EXE	Binary	**End-User Client Workstation**, self-installing executable. Contains the client RPC Broker files for 32-bit operating systems, including the RPC Broker Client Agent and standalone Help files.

Table 4: RPC Broker End-User Client Workstation interactive installation distribution files

2. Shut Down Microsoft Windows Applications *(required)*

We recommend shutting down all other Microsoft Windows-based applications running on the workstation you're installing on. In particular, you must *not* be running *any* application that uses the Broker during the installation.

3. Shut Down the Client Agent *(required)*

If the RPC Broker Client Agent is running, shut it down. To determine if the Client Agent is running, look in the workstation's menu bar tray. If you see one of the following the RPC Broker Client Agent icons, the Client Agent is running:

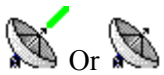

Figure 1: RPC Broker Client Agent icons (connected, not connected)

If it is running, to shut down the Broker Client Agent, do one of the following:

- Right-click on the RPC Broker Client Agent icon in the workstation's menu bar tray, and choose ShutDown from the pop-up Client Agent menu.
- Double-click on the RPC Broker Client Agent icon to open the Client Agent window, and then click  in that window.

At the prompt "If you close the client agent, your ability to access the **V***ISTA***A** server may be reduced. Do you want to proceed with closing the client agent?" click Yes.

4. Run the Installation Program (required)

Run XWB1_1WS.EXE on the client workstation, starting the interactive end-user client workstation installation. For example, on a Microsoft Windows 2000 system:

A. Go to the Start menu.

B. Select the Run option.

C. Click Browse to locate XWB1_1WS.EXE.

D. Click OK to run XWB1_1WS.EXE

Follow the online instructions provided when you run the installation program. We *strongly* recommend the following:

- **Accept default directories—**When prompted to accept the default Broker Directories, click OK. *If the target directory is on a Microsoft Windows NT NTFS (NT file system) volume, the user(s) of the workstation need READ access to the Broker directories.*

This version (1.1) of the RPC Broker is a 32-bit application. We strongly recommend that you load it in a separate directory from any previously installed 16-bit (version 1.0) RPC Broker.

- **Always start the Client Agent—**When prompted whether to always start the Broker Client Agent, click Yes. This starts the Broker Client Agent whenever Microsoft Windows starts.

For a complete listing of installed client files after installation, refer to the "File List" chapter in the "RPC Broker Technical Manual."

5. Restart Microsoft Windows *(recommended)*

Restart Microsoft Windows so the latest version of the Broker Client Agent is running.

6. Modify the HOSTS File *(optional)*

The HOSTS file is an ASCII text file that contains a list of the servers and their IP addresses. If IRM wishes to add, modify, or delete servers and IP addresses to be used by the Broker, please refer to the "HOSTS File" topic in Chapter 1 of the "RPC Broker Systems Manual."

7. Add Listeners/Ports to the Microsoft Windows Registry *(optional)*

If IRM wishes to add, modify, or delete servers and ports to be used by the Broker, please refer to the "Edit Broker Servers Program" topic in Chapter 1 of the "RPC Broker Systems Manual."

Non-Interactive Installation Instructions

The end-user client workstation installation does more than copy files into directories; it also makes entries in the Microsoft Windows Registry. Thus, simply doing a mass copy of files from a server to various end-user client workstations is insufficient.

1. Confirm Distribution Files

The following files are needed to install the RPC Broker end-user client workstation software *non*-interactively:

File Name	Type	Description
XWB1_1P26RM.TXT	ASCII	**Readme Text File**. Provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to workstation installations.
XWB1_1P26IG.PDF	Binary	**Installation Guide**. Use in conjunction with the XWB1_1P26RM.TXT Readme text file.
XWB1_1WS.EXE	Binary	**End-User Client Workstation**, self-installing executable. Contains the client RPC Broker files for 32-bit operating systems, including the RPC Broker Client Agent and standalone Help files.
XWB_DFLT.INI	ASCII	**Initialization File**. Use for *non*-interactive installation of the Broker on end-user client workstations.

Table 5: RPC Broker End-User Client Workstation non-interactive installation distribution files

2. Modify the XWB_DFLT.INI file for Site-specific Settings *(optional)*

The *non*-interactive installation uses the installation settings stored in the file XWB_DFLT.INI. This file must be in the same directory from which you run XWB1_1WS.EXE. Prior to the installation, you may use a text editor (e.g., Microsoft Notepad) to edit this file and change the default settings, to control how the installation is performed. Its entries and permissible settings are as follows:

XWB_DFLT.INI Entry	Default Value	Description and Permissible Settings
Version	1.1	*Do not change the Version entry.*
BrokerDirectory	c:\Program Files\Vista\Broker	Broker client files directory location.
MakeBackUps	Yes	Yes or No entry. If yes, automatically backs up Broker client files into the directory specified by the BackUpDirectory entry.
BackUpDirectory	c:\Program Files\Vista\Broker\Backup	Backup Broker client files directory location.
AutoStartClientAgent	Yes	Yes or No entry. Yes enables Automatic startup of the Client Agent on the workstation.

Table 6: XWB_DFLT.INI file default settings

The Version entry in the XWB_DFLT.INI file should be 1.1. Do *not* edit this entry.

3. Load and Run XWB1_1WS.EXE with Switches *(required)*

Prior to beginning an installation, we recommend you shut down all other Microsoft Windows-based applications running on the workstation. Specifically, you must *not* be running the Broker Client Agent or *any* application that uses the Broker during the installation.

To start the *non*-interactive end-user client workstation installation setup program, run XWB1_1WS.EXE *with switches:* **/S AUTO**:

```
XWB1_1WS.EXE /S AUTO
```

The switches must be in UPPERCASE. Follow the procedures on how to run a program non-interactively as described in your operating system's Systems Manual.

4. Finish Remaining Installation Tasks *(recommended)*

To complete the *non*-interactive installation, please refer to and follow Steps 5 – 7 of the "Interactive Installation Instructions" from earlier in this chapter. Special workstation management software and/or local procedures may enable you to perform these remaining steps non-interactively.

3. Programmer Workstation Delphi V. 6, 5, and 4 Instructions

First, determine if you need to follow the installation instructions in this section by consulting the patch installation instructions, the Readme file, and the "Preliminary Considerations" section in this manual.

1. Considerations Before Installing the BDK

- **Installation Sequence—**The Programmer Client Workstation installation no longer requires that the End-User Client Workstation software be installed prior to installing the Programmer Client Workstation.
- **Microsoft Windows Registry Access—**While the RPC Broker installation on the client does not require Administrator privileges, it does require the ability to write to the HKEY_LOCAL_MACHINE entries under the Software key in the Microsoft Windows Registry. In Microsoft Windows NT 4, the User category can do this. Under Microsoft Windows 2000, the User category cannot. However, under Windows 2000, the Power User category can write to the Software key under the HKEY_LOCAL_MACHINE part of the registry. Thus, while not having to have Administrator privileges, installers of the RPC Broker software should be at least Power Users on Windows 2000.
- **Source Code—**The release of the source code does not affect how a developer uses the Broker components or other parts of the BDK.

  

  Modified BDK source code should *not* be used to create VISTA GUI applications.

  

  Suggestions for changes to the BDK should be done via NOIS (for bugs) or E3R (for enhancements) for review and possible inclusion in another patch.

- **Design-time and Run-time Packages—**The BDK has separate run-time and design-time packages. There is no longer a VistaBroker package. The packages are XWB_**Dxx** and XWB_**Rxx**, where "**D**" means Design-time, "**R**" means Run-time, and "**xx**" is the two-digit number indicating the version of Delphi with which it should be used (e.g., XWB_D50 is the design-time package for Delphi V. 5.0). The run-time package should not be used to create executables that depend on a separate XWB_Rxx.bpl installed on client workstations. There is no procedure in place at this time to reliably install the correct version of the run-time bpl on client workstations.

  

  Do *not* compile your project so that it relies on dynamic linking with the BDK's run-time package; that is, do *not* check the "Build with runtime packages" box on the Packages tab of the Project Options dialog.

- **Package Dependencies—**A Package may have been defined to *require* the Broker package. Patch XWB*1.1*14 changed the identity of the Broker design-time package. If you try to install a package into the Delphi IDE that requires the Broker, you may receive an error message like:

  ```
  Can't load package <Package1>.
  One of the library files needed to run this package cannot be found.
  ```

  To resolve this problem, Open the DPK file associated with that package; delete the reference to the old version of the Broker in the Requires section; add a reference to the new design-time Broker package (XWB_Dxx) into the Requires section; recompile and install the package.

- **Component Dependencies—**Some VA-developed components may reference the TRPCBroker component. If you develop applications using such components, be aware that installing a newer version of the TRPCBroker component may cause incompatibilities, until the Broker-dependent components have been recompiled with the new version of the TRPCBroker component. Any such incompatibilities would show up as a compilation error:

  ```
  Unit <Unit1> was compiled with a different version of <Unit2>
  ```

  To resolve this problem, you need to either:

  A. Obtain the source code for the components so that you can recompile the components with the new BDK units.

  OR

  B. Obtain a compiled version of their component that was compiled with the same version of the BDK you are using.

  The VA FileMan Delphi Components (FMDC) is one example of a package whose source code references the TRPCBroker component. Patch FMDC*1.0*1 was released to issue the FMDC source code, so that you can easily recompile FMDC whenever new BDKs are released.

- **Delphi V. 5 and V. 6 Standard Edition—**Delphi V. 5 and Delphi V. 6 comes in three flavors: Standard, Professional, and Enterprise. The Standard editions of Delphi V. 5 and V. 6 are targeted mainly at students, and as such leaves out many features. The Standard Editions do not ship with Delphi's OpenHelp help system. This makes it difficult to integrate the BDK help with Delphi V. 5 and V. 6, Standard Editions. We do *not* recommend using the Standard Editions of Delphi V. 5 and V. 6 for RPC Broker development at this time.

2. Confirm Distribution Files

Use the following files to install the BDK for Delphi V. 6, 5, or 4:

File Name	Type	Description
XWB1_1P26RM.TXT	ASCII	**Readme Text File**. Provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to workstation installations.
XWB1_1P26IG.PDF	Binary	**Installation Guide**. Use in conjunction with the XWB1_1P26RM.TXT Readme text file.
XWB1_1P26PG.EXE	Binary	**Programmer Client Workstation** self-installing executable. Installs the RPC Broker Development Kit (BDK).

Table 7: RPC Broker Programmer Workstation installation distribution files

3. Delphi V. 4 Only: Install Updated Delphi V. 4 Help System *(recommended)*

There is an update from Borland to the Delphi V. 4 help system, for the originally released version of Delphi V. 4. This update enables Delphi V. 4's new "OpenHelp" system, which makes 3rd party help (e.g., the Broker help) easier to integrate.

For Delphi V. 4 only, to install this update:

A. Exit Delphi V. 4, if it is open.

B. Go to Borland's Delphi Documentation update web page, and download the "DELPHI4.HLP" update. At the time of publication of this manual, the name of the file to download is DEL4HLP.ZIP, and the file is located at:

   ftp://ftp.borland.com/pub/delphi/techpubs/delphi4/del4hlp.zip

C. Unzip DEL4HLP.ZIP, placing the four resulting files (DELPHI4.CNT, DELPHI4.HLP, DELPHI4.OHC, DELPHI4.OHI) into the following directory (overwriting the existing versions of these four Delphi4 help files):

   ```
   ...\DELPHI4\HELP
   ```

4. De-Install Any Previous BDK Installed for Delphi V. 4, 5, or 6 *(required)*

If this is a virgin installation for your version of Delphi proceed directly to Step 5.

A. Start Delphi V. 6, 5, or 4 and close any open projects.

B. From the Delphi menu, select *Component* | *Install Packages*.

C. Remove any previous version of the BDK from the Design Packages listing. To do this:

   i. Scroll through the listing of installed design packages until you find the entry for the previous version of the BDK (i.e., TRPCBroker). The name of the previous version may be `VistA RPC Broker`, `VistaBroker`, or it may start with the pattern `VistA Broker --designtime*`. The remainder of this section will refer to this package as `YourOldBroker`.

   ii. Select (highlight) this entry.

   iii. Click Remove.

   iv. Delphi presents one of two confirmation dialog boxes, which say one of the following:

   Confirm 1:

   ```
   Remove 'c:\program files\...\YourOldBroker.bpl' from the design package
   list?
   ```

   If Delphi presents this confirmation dialog, click Yes.

   Confirm 2:

   ```
   Package(s) xxx will be uninstalled because they require package
   YourOldBroker. Continue remove?
   ```

   If this is OK, click Yes. Any packages dependent on the RPC Broker are also uninstalled. You will need to re-install them after you install or update the TRPCBroker component files. If you click No, you will not be able to de-install the previous RPC Broker software.

   v. If you chose to remove any packages, Delphi may also present a Remove Runtime Packages dialog, stating:

   ```
   The package names in the following list are not used by any installed
   packages. Remove the selected names from the runtime packages list?
   ```

   If Delphi presents this dialog, click Yes.

   vi. Click OK in the "**Project Options**" dialog box to finish the de-installation.

D. Close Delphi V. 6, 5, or 4, answer No if you are prompted to save changes to any projects.

5. Run the RPC Broker Installation Program *(required)*

Prior to installing the RPC Broker, make sure that you exit/close *all* versions of Delphi running on your system.

To start the programmer client workstation installation setup program, run XWB1_1P26PG.EXE. Follow the procedures on how to run a program as described in your operating system's Systems Manual.

There is no "silent" installation for the BDK.

For example, in Microsoft Windows NT:

A. Go to the Start menu.

B. Select the Run option.

C. Click Browse to locate XWB1_1P26PG.EXE.

D. Click OK to run XWB1_1P26PG.EXE.

During the installation, various dialog boxes are presented to you. Follow the online instructions. The directory location you choose to install the BDK files will be referred to in these instructions as the "BDK files directory." In addition to placing files in the subdirectories of the BDK files directory, a copy of the run-time .bpl file (e.g. XWB_R50.BPL) will be put into the system directory.

The BDK installation supports several different versions of Delphi, which at the current time includes V. 6, 5, and 4. During the installation you are given the opportunity to include the necessary files for development under one or more of these environments. The BDK source code will be placed in a directory directly descendent from the BDK32 directory:

```
BDK32\Source
```

The installation will determine what version(s) of Delphi you have loaded on your system. It will then check the appropriate Delphi version(s) during the installation. For example:

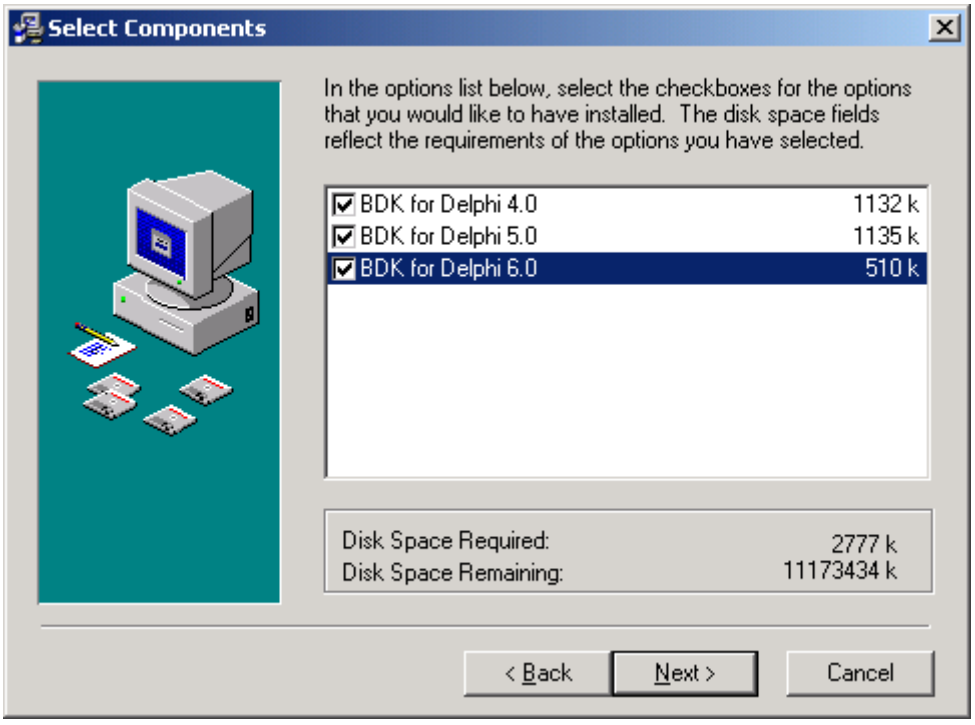

Figure 2: Sample Select Components dialog during the RPC Broker installation (your dialog may vary depending on the versions of Delphi you have loaded on your system)

6. Verify the Installation of the TRPCBroker, TXWBRichEdit, and TSharedRPCBroker Component Files in Delphi *(recommended)*

A. Start Delphi V. 6, 5, or 4.

B. Scroll through the Delphi palette tabs using the arrow buttons located in the upper right of the palette () until you see the tab marked "Kernel."

C. Move your mouse pointer over the Kernel tab and click to select it.

D. If the Broker components installed correctly, you should see the TSharedRPCBroker (), TRPCBroker, (), and TXWBRichEdit () components on the Kernel Tab, as shown below:

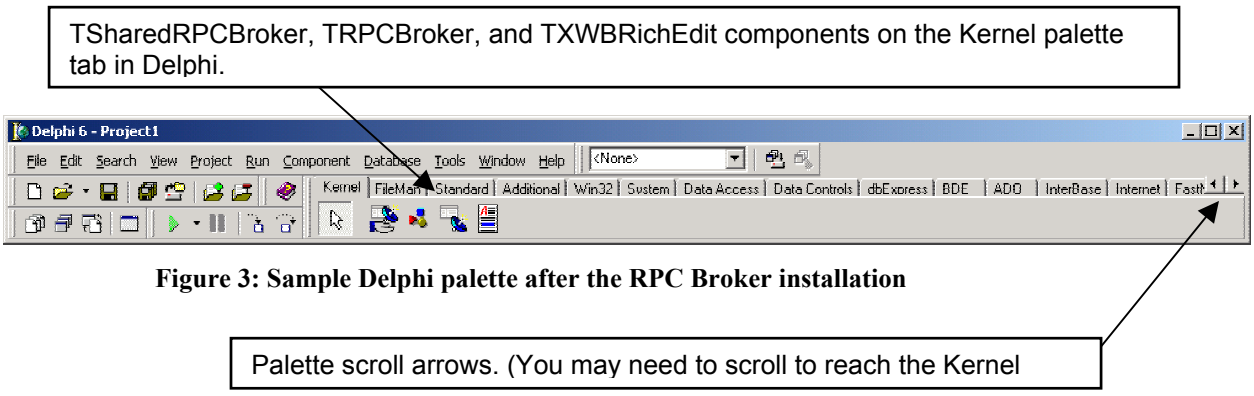

Figure 3: Sample Delphi palette after the RPC Broker installation

E. Verify that the RPC Broker context-sensitive help has been successfully integrated with Delphi's help.

i. On a blank form, add a Broker component.

ii. Select the Broker component on your form and press F1 for help. If the help for the Broker component comes up, you are all set.

iii. Press the *Help Topics* button while in any RPC Broker or Delphi help topic. You should see the "RPC Broker Developer's Guide" manual listed along with the regular Delphi manuals.

RPC Broker topics should be available in the Delphi help index and full text search tabs as well.

You will now need to re-install any packages that were removed when you de-installed the previous BDK (Step 4).

***** You have now completed the installation of the RPC Broker components in Delphi V. 4, 5, and/or 6 on the Programmer Client Workstation *****

4. VISTA M Server Installation Instructions

First, determine if you need to follow the installation instructions in this section by consulting the patch installation instructions, the Readme file, and the "Preliminary Considerations" section in this manual.

Do *not* use the instructions in this section, if you are installing a server-side RPC Broker patch. Instead, follow the installation instructions included with the patch.

Only use the instructions in this section if you are performing a VIRGIN server installation, or UPGRADING VERSIONS of the RPC Broker on the server.

The instructions in this section are applicable for the Test/Production accounts in the DSM or Caché environments.

1. Confirm Distribution Files

Use the following files to install the **V*IST*A** M Server routines:

File Name	Type	Description
XWB1_1P26RM.TXT	ASCII	**Readme Text File**. Provides any pre-installation instructions, last minute changes, new instructions, and additional information to supplement the manuals. Read all sections of this file prior to workstation installations.
XWB1_1P26IG.PDF	Binary	**Installation Guide**. Use in conjunction with the XWB1_1P26RM.TXT Readme text file.
XWB1_1.KID	ASCII	**KIDS Distribution.** Contains the RPC Broker server software: • 1 Global (^XWB) and VA FileMan files • Server Routines Kernel Options and Remote Procedure Calls

Table 8: RPC Broker V*IST*A M Server installation distribution files

2. Retrieve Released RPC Broker V. 1.1 Patches *(required)*

At the time of publication of this manual, several server-side patches for the RPC Broker V. 1.1 have been released. You should have these patches readily available so that you can apply them later in the installation process.

Obtain all released RPC Broker V. 1.1 server-side patches from the Patch module on FORUM or through normal procedures.

For a complete list of patches released with the RPC Broker V. 1.1 software, please refer to "Appendix A—Patch Revision History.

3. Save Broker Routines and Global as a Safeguard before the Installation *(optional)*

If this is a virgin installation proceed directly to Step 4.

If you are running a prior version of the RPC Broker, you should save the existing Broker routines and global (i.e., XWB namespace) on the VISTA M Server prior to performing the main RPC Broker installation. It is best to save the Broker routines and global immediately prior to performing the RPC Broker main installation.

4. Place the ^XWB Global *(required)*

The RPC Broker uses one global, ^XWB. This global is used by the RPC Broker to store the REMOTE PROCEDURE (#8994) and the RPC BROKER SITE PARAMETERS (#8994.1) files.

If the ^XWB global is not already placed in the target M account, go ahead and place it before proceeding with the installation.

The ^XWB global has the potential to be read-intensive as more and more remote procedures are added to it in the future. The ^XWB global is static for the most part (except during the addition of new applications), so journaling can be disabled if so desired.

For DSM systems, it is best to translate the global to a volume set other than ROU.

For translation to take effect, DSM must be rebooted.

5. Review Global Protection, Translation, and Journaling *(required)*

Check the global protection, translation, and journaling characteristics of the RPC Broker ^XWB global on your system. An outline of a possible scheme for the management of the Broker global is listed below:

	Protection			
Global Name	**DSM for OpenVMS**	**Caché**	**Translate?**	**Journal?**
^XWB	System: RWD World: RW Group: RW User: RW	Owner: RWD Group: N World: N Network: RWD	YES	NO

Table 9: Global protection, translation, and journaling information for the ^XWB global

Cookbook recommendations should also be consulted regarding journaling, translation, and replication.

6. Do *Not* Run any Client/Server Software during the Installation *(required)*

No Broker-based client/server software should be running while the Broker installation on the server is taking place.

If this is a virgin installation, proceed directly to Step 8.

7. Shut Down the Broker Listener on the Server *(required)*

Check the system status and verify if the XWBTCPL routine is running (i.e., Broker Listener). If any Listeners are running, shut them down as follows:

A. Log into your VISTA M Server

B. Enter the following at the M prompt:

```
>D STOP^XWBTCP(Listener port)
```

(Typically, the Listener port is 9200.)

Alternatively, after you have installed the RPC BROKER SITE PARAMETERS file (#8994.1), you can use VA FileMan to set the STATUS field in this file for the appropriate port to STOP. Assuming that TaskMan is running, the Listener will be stopped on that port.

8. Copy XWB1_1.KID to the VISTA M Server Test and Production Accounts *(required)*

XWB1_1.KID is the VISTA M Server software in Kernel V. 8.0 KIDS format.

9. Verify You Have an HFS Device and a Null Device (required)

A. Verify you have a Host File Server (HFS) device in the DEVICE file (#3.5) named "HFS". If you have performed KIDS installations on your server before, you probably already have an appropriate HFS device set up. If you don't have an entry for this device, you must create one.

For information on how to create an HFS device, please refer to "Chapter 18 Host Files" in the "Kernel V. 8.0 Systems Manual."

B. Verify you have a Null device in the DEVICE file (#3.5) named "NULL" (or whose mnemonic is named "NULL"). You can have other devices with similar names, but one device is needed whose name or mnemonic is "NULL". The subtype should be a "P-" subtype (e.g., P-OTHER), the margin should be a minimum of 80, and the page length should be a minimum of 60. Sample setups:

DSM for OpenVMS Null Device Setup Example

```
NAME: NULL                          $I: _NLA0:
  ASK DEVICE: NO                    ASK PARAMETERS: NO
  SIGN-ON/SYSTEM DEVICE: NO         LOCATION OF TERMINAL: Bit Bucket
  SUBTYPE: P-OTHER                  TYPE: TERMINAL
```

Caché Null Device Setup Example

```
NAME: NULL                          $I: //./nul
  ASK DEVICE: NO                    ASK PARAMETERS: NO
  SIGN-ON/SYSTEM DEVICE: NO         LOCATION OF TERMINAL: BIT BUCKIT
  SUBTYPE: P-OTHER                  TYPE: TERMINAL
```

P-OTHER Terminal Type Setup Example

```
NAME: P-OTHER                       RIGHT MARGIN: 132
  FORM FEED: #                      PAGE LENGTH: 64
  BACK SPACE: $C(8)                 DESCRIPTION: General prntr (132)
```

10. Using KIDS, Install Broker Routines and Remote Procedures *(required)*

In the PACKAGE file (#9.4), verify the NAME field (#.01) for any package with the XWB namespace. The NAME should be RPC BROKER. If the NAME is incorrect, you must change it to read RPC BROKER. If no entry exists, the KIDS install will create the entry for you.

Using KIDS, load and install the Broker routines and remote procedures. Make sure you have installed *all* of the Kernel, VA FileMan, and Kernel Toolkit patches. For Kernel V. 8, install Kernel patch XU*8*59, if you haven't already installed it, after version 1.1 of the Broker. You do *not* need a previous version of the Broker to install this latest version. Follow the instructions under the "Installation Instructions" section in Patch XWB*1.1*26 in the Patch module on FORUM.

For more information on KIDS, please refer to the KIDS documentation in HTML format on the Kernel Home Page at the following web address:

http://vista.med.va.gov/vdl/#App11

11. Setup for XWB LISTENER STARTER Option *(recommended)*

The XWB LISTENER STARTER Option needs some setup performed so that it knows how to specify what node(s) to launch listeners on. You need to do setup for the XWB LISTENER STARTER Option if you are:

- A DSM site running TaskMan in a DCL context
- A Caché site

If your site corresponds to either of the configurations above, do the following:

A. Use VA FileMan to edit the BOX-VOLUME PAIR field (#.01) in the TASKMAN SITE PARAMETERS file (#14.7). For each Box-Volume pair where you plan to run a Broker Listener, make sure that the Box-Volume pair is entered in the BOX-VOLUME PAIR field.

For more information on configuring TaskMan, please refer to Chapter 23, "Task Manager System Management: Configuration," in the "Kernel V. 8.0 Systems Manual."

B. Type the following at the programmer prompt:

```
>S XWBCHK="ALLOW"
```

C. Invoke VA FileMan using D Q^DI and edit the new RPC BROKER SITE PARAMETERS file:

i. Select your site domain in the DOMAIN NAME field (#.01); only one entry is allowed here.

ii. For nodes where you plan to run Broker Listeners, enter/make sure their Box-Volume pairs are entered in the BOX-VOLUME PAIRS subfield (#.01) of the LISTENER multiple (#7):

- For each Box-Volume pair enter all the ports in the PORT subfield (#.01) of the PORT multiple that you plan to use for the Listeners.

- Also, enter the UCI in the UCI field (#1) of the PORT multiple where the Listener should run.

12. Device Setup for Caché Sites *(required)*

For Caché sites only, invoke VA FileMan using D Q^DI and review/modify the TYPE field values in the DEVICE file (#3.5) for the TCP and NULL device entries:

Device	TYPE Field Value
TCP	VIRTUAL TERMINAL
NULL	HOST FILE SERVER (HFS) or TERMINAL

13. Review Parameters for Auto Signon *(required)*

All sites should invoke VA FileMan using D Q^DI and review/modify:

- The system DEFAULT AUTO SIGN-ON field (#218) value in the KERNEL SYSTEM PARAMETERS file (#8989.3).
- Any AUTO SIGN-ON values set in users' NEW PERSON file (#200) entries.

The default value for both fields is null. These fields, in conjunction with Kernel's Multiple Signon fields, control access to Auto Signon for users in both the GUI and roll-and-scroll environments. The fields in the NEW PERSON file are checked first. If the user fields in the NEW PERSON file are null, the values in the KERNEL SYSTEM PARAMETERS file are used.

The values in the AUTO SIGN-ON and MULTIPLE SIGN-ON fields in the NEW PERSON file take precedence over the values in the AUTO SIGN-ON and DEFAULT MULTIPLE SIGN-ON fields in the KERNEL SYSTEM PARAMETERS file.

For more specific information on setting the Auto Signon site parameters, please refer to the "Integrated Auto Signon for Multiple User Sessions" topic in Chapter 1 of the "RPC Broker Systems Manual."

14. Apply Released Server RPC Broker V. 1.1 Patches *(required)*

At the time of publication of this manual, several server-side patches for the RPC Broker V. 1.1 have been released. Now that you have completed installing the released RPC Broker V. 1.1 original distribution, you should also apply all RPC Broker V. 1.1 server-side patches.

Patches must be installed in their published sequence. To install the patches, follow the installation instructions contained with each patch.

For a complete list of patches released with the RPC Broker V. 1.1 software, please refer to "Appendix A—Patch Revision History.

15. Start the Broker Listener on the Server *(recommended)*

Version 1.1 of the RPC Broker uses an M Listener that should always be running in the background, listening to a known port. To start a single Listener on a given port (e.g., 9200), do the following:

A. Log into your VISTA M Server

B. Enter the following at the M prompt:

```
>D STRT^XWBTCP(Listener port)
```

As a convention, the RPC Broker uses 9200, however, sites can choose any available port greater than 1024 (i.e., sockets 1 to 1024 are reserved for standard, well-known services such as SMTP, FTP, Telnet, etc.).

Alternatively, with DSM and Caché, you can invoke VA FileMan (D Q^DI) and edit the new RPC BROKER SITE PARAMETERS file (#8994.1). Set the STATUS field to START and, assuming that TaskMan is running, the Listener will be started. The STATUS field will change to RUNNING.

16. Automatically Start the Broker Listener(s) *(optional)*

The XWB LISTENER STARTER option can be used to start all configured Broker Listeners at one time (i.e., listeners configured to start in the RPC Broker's site parameters). Additionally, this option can be used to automatically start all of the Listener processes you need when TaskMan starts up, such as after the system is rebooted or configuration is restarted.

For information on automatically starting the Broker Listener(s) via the XWB LISTENER STARTER option, please refer to the "Broker Listeners and Ports" topic in Chapter 1 of the "RPC Broker Systems Manual."

17. Verify the Client/Server Installation of the Broker *(recommended)*

After the server installation is complete and the Listener has been started, verify that everything was installed correctly.

Locate and run the new Broker diagnostic tool (i.e., RPCTEST.EXE) on the client workstation to test the client connection to the server. The installation is successful, if you can signon to the server.

Follow the procedures on how to run a program as described in your operating system's Systems Manual. For more information on RPCTEST.EXE, please refer to the "Test the Broker Using the RPC Broker Diagnostic Program" in Chapter 3 of the "RPC Broker Systems Manual."

***** You have now completed the RPC Broker installation on the VISTA M server *****

Upon completing the installation of the RPC Broker software on both the VISTA M Server *and* client workstation(s), you are now ready to work with the RPC Broker interface and install VISTA GUI applications that use the RPC Broker.

Appendix A—Patch Revision History

The following table displays the patch/version release history for the RPC Broker software. The sequence number (Seq #) is the order in which the patch was released by National **V***IST***A** Support (NVS) and installed by the site. The sequence number does not necessarily match the Patch ID number in all cases. Also, the sequence number, in some cases, can imply dependency between patches. Each table entry indicates that the documentation was reviewed and updated as needed for each patch; in some cases, a patch may not affect the content of the documentation. Regardless, the patch will still be added to the patch history in reverse patch sequence order.

Seq #	Patch ID	Brief Summary	Status
24	XWB*1.1*29	This patch provides an installation executable for advanced RPCBroker features that must be installed, or at least registered, on the client workstations.	Client-side only patch—05/19/02. This document has been reviewed and updated as needed for this patch.
23	XWB*1.1*26	This patch updates the Broker's Programmer Client Workstation software—also known as the Broker Development Kit (BDK). It supports Delphi V. 4, 5, and 6. It provides a SharedRPCBroker component. Any GUI application that uses the SharedRPCBroker will now have the ability to share a Broker connection. This patch also supports ESSO.	Client-side only patch—05/19/02. This document has been reviewed and updated as needed for this patch.
22	XWB*1.1*13	This patch updates the Broker's Programmer Client Workstation software—also known as the Broker Development Kit (BDK). It supports Delphi V. 4, 5, and 6. It provides Silent Login functionality in the Broker. Any GUI RPC Broker-based application will now have the ability to login to an M Server silently (i.e. without any user dialog). This patch also supports Enterprise Single-Sign-On (ESSO).	Client and server patch—05/19/02. This document has been reviewed and updated as needed for this patch.
21	XWB*1.1*25	This patch adds a new protected field named SUPPRESS RDV USER SETUP (#.1) to the REMOTE PROCEDURE file (#8994). It regulates the addition of Remote Users to sites' local NEW PERSON files for the RDV-based RPCs.	Server-side only patch—Patch released on 05/09/02.
20	XWB*1.1*27	This patch enables asynchronous processing, multiple jobs running at the same time. Prior to this patch, processing of requests to the HL7 package for remote data made by GCPR and CPRS, was performed synchronously - in order of time of request, each job finishing before the next job started.	Server-side only patch—Patch released on 03/15/02.

Seq #	Patch ID	Brief Summary	Status
19	XWB*1.1*16	This patch provides several bug fixes (e.g., READ/WRITE errors) initiated via NOIS.	Server-side only patch—Patch released on 02/06/02.
18	XWB*1.1*24	This patch updates the Broker's Programmer Client Workstation software—also known as the Broker Development Kit (BDK). It supports only Delphi V. 4 and Delphi V. 5. Due to version-dependent code, a problem was recently encountered that is associated with reading the Microsoft Windows Registry in programs compiled with Delphi V. 5. Because a conditional test was specifically looking for Delphi V. 4-based applications, Delphi V. 5-based applications ended up using Broker code for Delphi V. 3. This can result in users having limited privileges, preventing their ability to read data from the registry. This has been observed when a user with limited NT privileges attempts to select a location for the RPC Broker connection, and it results in the use of the default BrokerServer/9200. However, users with higher levels of NT access do not see this problem. This version-dependent code was removed via this patch.	Client and server patch—Patch released on 11/09/01. This document was reviewed and updated as needed for this patch.
17	XWB*1.1*22	The calling site had a NEW PERSON file entry with a phone number containing a trailing backslash ("\"). As part of Remote Data Views (RDV), this data was then encoded and sent to the remote site. At the remote site, a bug caused the backslash ("\") to be appended to the end of several other strings, which then caused the reported error. This was fixed by correcting the decoding routine. Because the error occurred before RDV was setup to handle an error, it caused the calling site to keep sending the same message repeatedly. This has been fixed by setting an error trap at the beginning of RDV. If the application does not set some data into the return variable, XWB2HL7 will return a string starting with "-1^". The XWB EXAMPLE option, RPC's and routine (XWBEXMPL) are included to add an entry point for testing that will record the symbol table in the error trap.	Server-side only patch—Patch released on 10/03/01. This document was reviewed and updated as needed for this patch.

Seq #	Patch ID	Brief Summary	Status
16	XWB*1.1*20	This patch addresses the following: • During the early testing of RDV (Remote Data View), the DUZ value was hard set to .5 just before the call to the RPC. This was done because the code to set up the user at the remote site wasn't ready. When the code was fixed to properly set the DUZ, the old code was never removed. This has been fixed in the routine XWB2HL7. • If data was left in the ^XUTL("XQ",$J,"IO")node it could cause problems when HOME^%ZIS is called by some RPC's, so this ^XUTL node is killed off before the RPC is called. • In an e-mail message from CPRS developers: The global that may be used to pass data back to the RPC was not killed before its use. This was fixed in the routine XWBDRPC.	Server-side only patch—Patch released on 05/10/01. This document was reviewed and updated as needed for this patch.
15	XWB*1.1*14	This patch updates the Broker's Programmer Client Workstation software—also known as the Broker Development Kit (BDK). It adds no new functionality . It does the following: • Releases the source code for the BDK. • Splits the VistaBroker package into separate design- and run-time packages.	Client and server patch—Patch released on 10/17/00. This document was reviewed and updated as needed for this patch.
14	XWB*1.1*18	This patch fixed the following NOIS: LOM-0800-62301 and PRO-0800-11778: If there are problems associated with the remote site's HL7 definitions—specifically the receiving application. Then the RPC XWB REMOTE STATUS CHECK will get an UNDEF error on the variable Z.	Server-side only patch—Patch released on 10/17/00. This document was reviewed and updated as needed for this patch.
13	XWB*1.1*12	This patch is in support of the CPRS Remote Data Views project. The RPC Broker is used to facilitate invocation of Remote Procedure calls on a remote server. The RPC Broker uses **V***IST***A** HL7 as the vehicle to pass RPC name and parameters from a local server to a remote server. On the return path, **V***IST***A** HL7 is also used to send results from the remote server back to the local server.	Server-side only patch—Patch released on 08/04/00. This document was reviewed and updated as needed for this patch.

Seq #	Patch ID	Brief Summary	Status
12	XWB*1.1*10	This patch gives greater information about and control of RPCs. Specific new abilities are: • Blocking an RPC either locally*, remotely*, or in both contexts by setting a value in the INACTIVE field of the Remote Procedure file. Prior to this patch, values in this field had no effect. • Assuring that an RPC is at least a specified version when it is run remotely* by setting a value in the new VERSION field of the REMOTE PROCEDURE file. • Querying a server regarding the status of RPCs by using new Remote Procedures: XWB IS RPC AVAILABLE and XWB ARE RPCS AVAILABLE. • In addition, this patch stops M errors from occurring when a client application attempts to: 1.) Create a context that does not exist on the server, or 2.) Run a remote procedure that does not exist on the server.	Server-side only patch—Patch released on 08/04/00. This document was reviewed and updated as needed for this patch.
11	XWB*1.1*15	This patch should correct a problem on Cache sites with the Broker looping with COMMAND errors. This error is caused when the Broker tries to open the TCP port and the port is already open via the Broker.	Server-side only patch—Patch released on 04/12/00. This document was reviewed and updated as needed for this patch.
10	XWB*1.1*11	This patch updates the Broker's Programmer Client Workstation software—also known as the Broker Development Kit (BDK)—adding support for Delphi V. 5 development.	Client and server patch—Patch released on 01/24/00. This document was reviewed and updated as needed for this patch.

Seq #	Patch ID	Brief Summary	Status
9	XWB*1.1*9	This patch fixes the following: • Intersystems License. This is the patch that works with Patch XU*8*118. The code to share licenses when GUI and Telnet users from the same workstation are connected is in place and ZU now calls it. This patch adds a similar call from XWBTCPC. • This patch brings a new XWB LISTENER STOP ALL option for shutting down multiple listeners. It also brings a modified option XWB LISTENER STARTER for starting Broker listeners.	Server-side only patch—Patch released on 01/24/00. This document was reviewed and updated as needed for this patch.
8	XWB*1.1*8	This patch supports GUI Multi-Divisional signon. If a user has more than one division to choose from, the user must select one before continuing with the signon. If the user has only one division in File #200, this division will be used; otherwise, the default institution in the KERNEL SYSTEM PARAMETERS file will be used.	Client-side only patch—Patch released on 12/10/99. This document was reviewed and updated as needed for this patch.
7	XWB*1.1*6	This patch does the following: • Eliminates server Broker jobs for which there is no client application. • Changes the time that the server waits for the client to contact it. A new field in the KERNEL SYSTEM PARAMETERS file, BROKER ACTIVITY TIMEOUT (default value of approximately 3 minutes) controls the length of the timeout.	Client and server patch—Patch released on 09/09/99. This document was reviewed and updated as needed for this patch.
6	XWB*1.1*4	This patch does the following: 1. Introduces a shorter timeout when logging in via any GUI RPC Broker-based application. The server listener process will timeout after 90 seconds if the user has not passed in his/her Access and Verify codes. 2. Updates the Broker's Programmer Client Workstation software—also known as the Broker Development Kit (BDK)—adding support for Delphi V. 4 development. 3. Fixes a bug in which the Title bar of the Kernel Login form was being changed when a user started entering their Access code.	Client and server patch—Patch released on 06/24/99. This document was reviewed and updated as needed for this patch.

Seq #	Patch ID	Brief Summary	Status
5	XWB*1.1*7	This patch addresses two problems: 1. A command error is occurring at RESTART+17^XWBTCPL when the Broker tries to reopen a device that is not closed. This seems to be a problem with Cache sites only. The result of this error causes the Broker Listener to stop. The fix is in XWBTCPL. 2. The listener doesn't check for available slots before starting a new process. The listener will now check the MAX SIGNON ALLOWED field of the VOLUME SET multiple in the KERNEL SYSTEM PARAMETERS file, the same one used by Kernel logon. This fix is also in XWBTCPL.	Server-side only patch—Patch released on 06/04/99. This document was reviewed and updated as needed for this patch.
4	XWB*1.1*5	This patch is for the support of RUM. This will allow the trapping of data for Remote Procedure Calls (RPCs) and the RPC Broker handler.	Server-side only patch—Patch released on 03/31/99. This document was reviewed and updated as needed for this patch.
3	XWB*1.1*3	Under CPRS, when the DG routines call OP^XQCHK to record what option is used, it was getting back "unknown." The Broker created context needed to set the variable XQY.	Server-side only patch—Patch released on 01/06/99. This document was reviewed and updated as needed for this patch.
2	XWB*1.1*2	This patch addresses three problems with RPC Broker v1.1: • Encrypted Literal—Pattern match failure in RPCs. The failure only occurs with RPCs that combine multiple literals and an array (NOIS WAS-0398-22800). • Data Collection Switch turned "Off"—Collection of data will be controlled by the use of the Capacity Management tools (NOIS BRX-0498-11768 and HUN-0498-21137). • 10 Second Network Timeout in Client Agent—A 30 second timeout is being switched to 10 for network communications with the Client Agent.	Server-side only patch—Patch released on 07/27/98. This document was reviewed and updated as needed for this patch.

Seq #	Patch ID	Brief Summary	Status
1	XWB*1.1*1	This patch fixes some small problems that were discovered after release (server-side only). • XWBTCPL—Remove the SYMBOL_TABLE from the VAX DSM JOB command. • XWBTCP—When stopping the Broker, see a failure to open a socket. • XWB BROKER EXAMPLE option—This option was missing its type field.	Server-side only patch—Patch released on 02/18/98. This document was reviewed and updated as needed for this patch.
NA	Version 1.1	Original Version 1.1 software release.	September 1997

Table 10: RPC Broker V. 1.1 patch revision history (in reverse sequence order)